

USSR/Human and Animal Physiology (Normal and Pathological)  
Digestion: Intestines.

T

Abs Jour : Ref Zhur Biol., No 6, 1959, 26709

afferent impulsion in the nerves of I, mesentery and  
pancreas. The same effect was obtained by the intro-  
duction into I of 0.1-0.4% solution of HCl, especially  
into the duodenum. -- B.A. Shaternikov

Card 3/3

DELOV, V.Ye.; ZAMYATINA, O.N.; KISELEV, P.A.

Electrophysiological characteristics of efferent impulse excitation in the gastric nerves. Trudy Inst. fiziol. 10:303-311-'62  
(MIRA 17:3)

1. Laboratoriya elektrofiziologii (zav. - V.Ye.Delov) Instituta fiziologii imeni Pavlova AN SSSR.

ZAMYATINA, O.N.

ZAMYATINA, O.N.

Electrophysiological study of afferent impulses in intestinal  
nerves. Fiziol.zhur. 43 no.5:441-448 My '57. (MIRA 10:12)

1. Laboratoriya elektrofiziologii Instituta fiziologii im. I.P.  
Pavlova AN SSSR, Leningrad.

(INTESTINES, innervation,  
afferent impulses, electrophysiol. (Rus))

ZAMYATINA, O. N.

"Electrophysiological Investigations of Afferent and Efferent Pulsations in Nerves of the Intestines." Cand Biol Sci, Inst of Physiology imeni I. P. Pavlov, Acad Sci USSR (Apr-Jun 54). (Vest Ak Nauk, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

ZAMYATINA, O.N.  
ZAMYATINA, O.N.

Electrophysiologic characteristics and functional significance of  
afferent impulses from the receptors of the intestinal wall. Trudy  
Inst. fisiol. 3:193-208 '54. (MLRA 8:2)

1. Laboratoriya elektrofiziologii. Zaveduyushchiy V.Ye.Delov.  
(INTESTINES, physiology,  
electrophysiol. & funct. significance of afferent impulses  
from intestinal wall)

ZAMYATINA, I.M.									
F									
5042. ROLE OF REGULATING HYDRO POWER STATION IN SECURING POWER RESERVE FOR THERMAL POWER SYSTEM. Kutsenov, V.A. and Zamyatina, I.M. (Elektrichestvo, Mar. 1949, (3), 67).									
<div> <div> METALLURGICAL LITERATURE CLASSIFICATION </div> <div> EXPERIMENTAL DATA </div> </div>									

ZAMYATINA, T.V.; KOVALENKO, V.N.

First All-Russian Conference of Blood Service Employees. Zdrav. Ros.  
(MIRA 11:5)  
Feder. 2 no.5:38-40 Ky '58.  
(BLOOD--TRANSFUSION) (BLOOD--COLLECTION AND PRESERVATION)

Polycondensation reactions. V. Determination of terminal groups of polyamides. N. V. A. Zaryatina and V. V. Korshak. Bull. acad. sci. U.S.S.R., Classe sci. chim., 1945, 480-5. Polyamides are prepd. by heating together hexamethylenetetramine (I) and adipic acid (II) at 230-250°. The product is dissolved in crasol. repptd. by adding alc., collected, and dried. One portion is treated with 10 ml. 0.01 N HCl and also 0.01 N NaOH for 2 hrs. and the excess of reagent is back-titrated. The mol. wt. is given by  $M = 200,000/a + b$ , where a and b are the resp. titers in ml. per g. of polyamide. M varies from 3000 to 20,000 depending on the proportions of I and II used, temp., and time of heating. Values of n obtained by viscosity measurements are similar. When I:II = 1, terminal NH<sub>2</sub> groups predominate owing to decarboxylation of II during the reaction. Cf. C.A. 40, 4665<sup>6</sup> S.A.



1ST AND 2ND CROSSL		PROCESSING AND PROPERTIES INDEX		3RD AND 4TH CROSSL	
ca		<p>Polyccondensation reactions. VI. Acidolysis and aminolysis of polyamides. V. V. Korshak and V. A. Zamyatina (Inst. Org. Chem., Acad. Sci. U.S.S.R.): <i>Bull. Acad. Sci. U.R.S.S., Classe. sci. chim.</i> 1945, 600-15 (in English, 616); cf. C.A. 39, 4262', 4502'.—When cresol solns. of polyamides are heated for 4 hrs. at 240° with acids such as adipic (I) or stearic (II), they are broken down into smaller mols. (acidolysis). The mol. wt. of the final product is inversely proportional to the amt. of acid used. When I is used, the products have terminal CO<sub>2</sub>H groups, but on long heating, these lose CO<sub>2</sub> and the mol. acquires a terminal hydrocarbon group. If II is used the terminal group is initially hydrocarbon. In such cases, titration gives incorrect values for the mol. wt. Hexamethylenetetramine produces a similar effect (aminolysis) but the product has only terminal NH<sub>2</sub> groups. Titration of such compds. gives low values for the mol. wt. because the NH<sub>2</sub> groups are united by H bonds.</p> <p>H. M. Leicester</p>		10	
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
FROM SYNDICATE		FROM BOWING		FROM BOWING	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	

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Polyvinyl derivatives. II. Polyvinylbutyl ether. V.  
V. Koshak and V. A. Zamyatina. J. Gen. Chem.  
(U.S.S.R.) 13, 947-51 (1945) (English summary); cf.  
C.A. 37, 19851.—The polymerization of butylvinyl ether  
 was studied between  $-55^{\circ}$  and  $60^{\circ}$  in the presence of  
 various catalysts:  $\text{SnCl}_4$  is most vigorous,  $\text{BF}_3$  slightly  
 less vigorous,  $\text{FeCl}_3$  less vigorous and capable of most re-  
 producible results,  $\text{AlCl}_3$  gave colored products. The  
 presence of  $\text{SO}_2$  had no effect on the polymerization.  
 The polymers are viscous and very sticky fluids, sol. in  
 $\text{Et}_2\text{O}$ , and in benzene, insol. in  $\text{EtOH}$  and in water and  
 generally have mol. wts. up to about 1000 (max. size ob-  
 tained with  $\text{SnCl}_4$  at  $30^{\circ}$ ) which polymer was isolated by  
 fractional pptn. of the crude mixt. Oxidation by  $\text{HNO}_3$   
 gave butyric and oxalic acids; this showing the structure  
 of polymer as of a 1,3-glycol. Hydrolysis by acids led  
 only to tars, whereas hydrolysis by alkali, especially alc.  
 $\text{KONa}$ , gave noticeable amts. of polyvinyl alc. (no de-  
 tails or yields given). Heating of the polymer with 1:1  
 mixt. of  $\text{AcOH}$  and  $\text{Ac}_2\text{O}$  in the presence of  $\text{NaHPC}$   
 gave a product which contained but 28% Bu groups, and  
 thus was a mixed acetate-butyl ether of polyvinyl alc.;  
 it differed from the original polyether by ready soly. in  
 $\text{EtOH}$

G. M. Kosolapoff

10

Polyvinyl compounds. III. Some reactions of polyvinyl alcohol. V. A. Zamyatina U.S.S.R. Chem. Rev. 1960, 10, 10 (in Russian); cf. C.A. 40, 8002. — Polyvinyl acetate (mol. wt. 10,151;  $\eta$  187) was hydrolyzed according to Staudinger and Schwalbach (C.A. 25, 5138) by hot alc. KOH and according to Ushakov by alc. HCl. The polyvinyl alc. was then dialyzed and the analysis showed the presence of 1 Ac group per 75 alc. units. The mol. wt. of the alc. was 8577 (viscosity of aq. soln.), thus showing that no significant chain scission took place; this was checked by reacylation by AcO-AcOH in the presence of  $H_2SO_4$ . It was noted that absolutely dry polyvinyl alc. cannot be completely acetylated even at 60–80° or 1 month's standing; use of wetted polyvinyl alc., which was then washed thoroughly by alc. and  $Et_2O$ , however, gave rapid and complete acetylation after 1 hr. at 70°; the product was purified by soln. in benzene and evapn. Polyvinyl alc. (30 g.) in 200 ml. 30% NaOH was boiled 6–10 hrs.; an insol. modification sepd. in a lump which, after sedimentation and prolonged washing in water and drying over  $P_2O_5$ , was obtained in the form of a brownish solid, insol. in water, only swelling on heating in water. The wetted material, after alc.- $Et_2O$  washing, is readily acetylated to a similarly insol. acetate, which merely swells in the usual org. solvents, although its Ac no. is 115, i.e. very close to

normal polyvinyl acetate. Oxidation of polyvinyl alc. by hot 20%  $HNO_3$  gives only  $CO_2H$ , while oxidation by 30%  $H_2O_2$ -10% NaOH gave  $Me_2CO$ , confirming the 1,3-glycol structure of the normal polyvinyl alc. Polyvinyl alc. (5 g.) added to 50 g. phthalic anhydride in 150 ml. AcOH and 0.5 ml. concd.  $H_2SO_4$ , heated 1 hr. to 100°, and poured into cold water gave 7 g. polyvinyl phthalate, crumbly solid, softening at 70°, sol. in alc., AcOH, and  $Me_2CO$ .  
G. M. Koudapoff

Products of addition of mercuric nitrate to acetylene. V.V. Korshak and  
 X V.A. Zamyatina. Bull. acad. sci. U.R.S.S., Classe sci. chim. 1946, 111-114  
 (in Russian).--

$C_2H_2$  was passed into a 25% soln. of  $Hg(NO_3)_2$  in 2%  $HNO_3$ ; the ppt. was washed after rapid filtration by 2%  $HNO_3$ ,  $H_2O$ , alc., and  $Et_2O$ . It is a heavy white solid,  $C_2HNO_4 \cdot Hg_2$ , which inflames on heating and gives  $CHI_3$  with iodine in  $KI$ ; it absorbs  $Br$  from its soln. in  $CCl_4$  or  $H_2O$  (2 moles and 6 moles, resp.). Heating 1 g. in 20 ml.  $AcOH$  gives an anhydride,  $C_2H_2O_2Hg$  (mol. wt. 249.5-269, in  $AcOH$ ), which ppts. from the reaction soln. and decomp. above  $240^\circ$ . If  $C_2H_2$  is passed into 10 g.  $Hg(NO_3)_2$  in  $AcOH$  contg. a little  $Ac_2O$  the pptd. product is  $C_2H_2N_2O_7Hg_2$ , adds  $Br$  and gives  $CHI_3$  with iodide, i.e. is a deriv. of  $AcH$ .  $CICH$ :  $CHHgCl$  (1g.) (from  $C_2H_2$  and  $HgCl_2$  in 15%  $HCL$ ) was shaken in 25% aq.  $Hg(NO_3)_2$ ; soln. and simultaneous pptn. take place; the product is  $C_2HNO_4Hg_2$ , identical with that described above. On the basis of the observations, the following structures are believed to be correct:  $C_2H_2N_2O_7Hg_2$  is  $(O_3NHg)_2CHCHO$ , while  $C_2HNO_4Hg_2$  is  $Hg.O.CH=CHgNO_3$ .

G. M. Kosolapoff

V. ZARVATINA,

V. Korshak, S. Raffilov, V. Zaryatina

"Study on Polycondensation Reactions." Acta Physicochimica USSR, 21, pp 723-40,  
1946

ABSTRACT AVAILABLE

D-50054

10

PROCESSES AND PROPERTIES INDEX

High-molecular weight compounds. XVI. The polydispersity of polyamides. V. V. Korshak and V. A. Zamyatina. *Izv. Akad. Nauk S.S.S.R. Otdel. Khim. Nauk* 1948, 412-119; cf. C.A. 42, 7279e. — Two polyamides were prep'd. by condensation of hexamethylenediamine and adipic acid. The 1st polyamide (I), made from the stoichiometric ratio of diamine and acid, had a mol. wt. of 16,300 by  $\eta$  detn. and 16,300 by end-group analysis. The 2nd polyamide (II), made with an excess of adipic acid, had a mol. wt. of 4440 by  $\eta$  detn. and 3310 by end-group analysis. A mixt. of equal parts of I and II had a mol. wt. of 6080 by  $\eta$  detn. and 3310 by end-group analysis. Fractionation of a 2% cresol soln. of the mixt. by addn. of MeOH produced 2 fractions. The 1st fraction, corresponding to I, had a mol. wt. of 14,410 by  $\eta$  detn. and 17,550 by end-group analysis. The 2nd fraction, corresponding to II, had a mol. wt. of 5120 by  $\eta$  detn. and 3700 by end-group analysis. Another polyamide (III), also made from a stoichiometric ratio of reactants, had a mol. wt. of 19,400, calcd. from the intrinsic  $\eta$ . The 1.5% cresol soln. of III was fractionated with MeOH into 5 fractions ranging in mol. wt. from 8500 to 21,300. A polyamide (IV) made with excess diamine had a mol. wt. of 9300, calcd. from the intrinsic  $\eta$ . The 2.5% cresol soln. of IV was fractionated with MeOH into 6 fractions ranging in mol. wt. from 2800 to 10,800. Mol. wt. distribution curves showed III to be mostly in the 16,000-20,000 range, while IV spread over a broad mol. wt. range without any pronounced max. The homogeneity of polyamides is affected by the fact that degradative (chain breaking) reactions can occur at the same time as condensation. The final mol. mixt. represents a resultant of the various reactions. Fractionation of polyamides does not necessarily proceed in a manner governed by the mol. wt. of the polymer mols. but is also affected by the nature of the end groups on the polymer mols. Min. soly. in cresol MeOH mixts. is observed with hydrocarbon groups, max. soly. with amino groups, whereas the carboxy groups have av. soly.

H. K. Livingston

ASD-SLA RETAILING LITERATURE CLASSIFICATION

REGION: SYMBIOSE

SHORT: HEP ONLY OEL

REGION: SYMBIOSE

SHORT: HEP ONLY OEL

PA 8/49115

ZAMYATINA, V. A.

USSR/Chemistry - Amides, Poly  
Chemistry - Distillation

Jul/Aug 48

"Studies in the Field of High-Molecular Compounds,"  
V. V. Korshak, V. A. Zamyatina, Inst Org Chem,  
Acad Sci USSR, 7 1/2 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 4

Describes fractioning of polyamides from solutions  
in cresol by precipitation with methyl alcohol.  
Constructs distribution curve. Establishes  
that polyamides are fairly uniform products contain-  
ing only small quantities of low-molecular fractions  
and, therefore, the mean value of the molecular  
weight, determined by viscosity of solutions,  
8/49115

USSR/Chemistry - Amides, Poly (Contd) Jul/Aug 48

represents the basic constituent of the polyamide  
fairly accurately. This uniformity, evidently,  
distinguishes the polyamides from high-molecular  
substances obtained by polymerization. Submitted  
20 Nov 1946.

8/49115

$\alpha_0$  is the polymerization coeff. of initial product,  $\alpha$  that after  
the destructive reaction,  $q$  is the mole percent of the active  
agent.  
G. M. Kozlov



ZAMYATINA, V. A.

62-58-4-1./32

AUTHORS:

Korshak, V. V., Zamyatina, V. A.,  
Bekasova, N. I.

TITLE:

Heterogenous Chain Polyesters (O geterotsepnikh  
poliefirakh). Communication 9. Catalysts of the  
Reaction of Etherification (Soobshcheniye 9. Kata-  
lizatory reaktsii polieteterifikatsii)

PERIODICAL:

Izvestiya Akademii Nauk SSSR Otdeleniye Khimicheskikh  
Nauk, 1958, Nr 4, pp. 482-485 (USSR)

ABSTRACT:

The reaction of the polycondensation of ethylene gly-  
col with the esters of terephthalic acid takes place  
very slowly without catalysts. The number and the kind  
of catalysts exercise an essential influence on the  
velocity of the reaction as well as on the molecular  
weight of the forming terephthalates. According to  
patent data alcoholic metals, alcoholates (and their  
oxides) are suggested for the production of polyethy-  
lene terephthalates (of dimethylterephthalate and  
ethylene glycol). As initial substances dimethyl tere-  
phthalate and ethylene glycol as well as diethylol

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Heterogenous Chain Polyesters.  
Communication 9. Catalysts of the Reaction of  
Etherification

62-56-4-14/32

terephthalate were used. The polycondensation process takes place in two stages: the peresterification and the polycondensation. The use of diethylol terephthalate for the production of polyester has hitherto not been described in technical literature. For the first time one of the authors of this work suggests the production of polyester. The results of the polycondensation of diethylol terephthalate is shown in table 2. The effect of some better usable catalysts was examined by some experiments. The results obtained showed that caustic alkali can be used successfully as catalyst. The duration of heating in vacuum must be prolonged in this case (see table 3). With germanium dioxide (or lithium-hydroxide addition respectively) satisfactory results were also achieved. However, they were not better than those obtained with aluminum oxide and lithium hydroxide. There are 3 tables and 10 references, 4 of which are Soviet.

Card 2/3

Heterogenous Chain Polyesters. 62-58-4-14/32  
Communication 9. Catalysts of the Reaction of Etherification

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii  
nauk SSSR (Institute for Elemental-organic Compounds,  
AS USSR)

SUBMITTED: October 12, 1956

AVAILABLE: Library of Congress

1. Ethylene glycol--Condensation--Reaction 2. Catalysts  
--Etherification--Reaction 3. Alcoholates--Applications

Card 3/3

ZAMYATINA, V. A.

AUTHORS: Korshak, V. V., Bekasova, N. I.,  
Zamyatina, V. A.

62-58-4-15/32

TITLE: Heterogenous Chain Polyesters (O geterotsepnikh poliefirakh). Communication 10. The Kinetics of the Polycondensation of Diethylole-Terephthalate (Soobshcheniye 10. Kinetika polikondensatsii dietilolterefthalata)

PERIODICAL: Izvestiya Akademii Nauk SSSR, ~~Otdeleniye~~ Khimicheskikh Nauk, 1958, Nr 4, pp. 486-491 (USSR)

ABSTRACT: The reaction of the polycondensation of diethylole-terephthalate has hitherto not been described in detail in technical literature. In the present paper the authors report on the results of kinetic investigations of the polycondensation reaction which takes place as follows:  $n \text{HOCH}_2\text{CH}_2\text{OCOC}_6\text{H}_4\text{COOCH}_2\text{CH}_2\text{OH} \longrightarrow$   
 $\longrightarrow \text{H}(\text{OCH}_2\text{CH}_2\text{OCOC}_6\text{H}_4\text{CO})_n\text{OCH}_2\text{CH}_2\text{OH} + (n-1)\text{HOCH}_2\text{CH}_2\text{OH}.$

Card 1/2

The kinetics of the polyesterification of diethylole

Heterogenous Polyesters. Communication 10.  
The Kinetics of the Polycondensation of Diethylole-  
Terephthalate

62-58-4-15/32

terephthalate in temperature intervals of from 240-285° at atmospheric pressure was investigated. Furthermore the velocity of the reaction was determined. The activation was determined (35000 cal/mol). It was found that the polyesterification of diethylole terephthalate without catalysts obeys the reaction rules of the second order. At a temperature of 285° the reaction equilibrium is set up and a further heating does not change the molecular weight of the polyester any longer. The kinetics of the polyesterification of diethylole terephthalate was investigated in the presence of catalysts consisting of an hydrate of lithium oxide and lithium aluminate. These catalysts accelerate the reaction. There are 3 figures, 3 tables and 10 references, 12 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for **Elemental-organic** Compounds, AS USSR)  
SUBMITTED: October 12, 1956  
AVAILABLE: Library of Congress  
Card 2/2

1. Diethylole terephthalate—Condensation—Reaction

ZAMYATINA, V. A.

62-56-5-13/27

AUTHORS: Korshak, V. V., Bekasova, N. I., Zamyatina, V. A.

TITLE: On the Heterogeneous Chain Polyesters (O geterotsepnnykh poliefirakh) Communication 11: Chemical Destruction of Polyethyleneterephthalate (Soobshcheniye 11. Khimicheskaya destruktziya polietilentereftalata)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 5, pp. 614 - 617 (USSR)

ABSTRACT: Polyethyleneterephthalate (and all products of it) is very stable in chemical respect. This property favors its processing. Polyethyleneterephthalate is difficult to dissolve and as polyester it must enter chemical reaction. The present report is devoted to the investigation of this property of polyethyleneterephthalate. The destruction of polyethyleneterephthalate was investigated in cresol-solution at various temperatures. It was found in this connection that polyester decomposes when heated above 110°C. Moreover the acidolysis and glycolysis of

Card 1/2

62-5E-5-13/27

On the Heterogeneous Chain Polyesters. Communication 11: Chemical Destruction of Polyethyleneterephthalate

polyethyleneterephthalate in a diphenyl-solution (at 200°C) on the action of adipic-acid and ethyleneglycol was investigated. It was found with this investigation that the degree of decomposition increases if an increase of the decomposing substances is observed simultaneously. Concluding, the decomposition-products were more closely defined. There are 3 figures and 14 references, 8 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
(Institute For Elemental-organic Compounds AS USSR)

SUBMITTED: November 10, 1956  
1. Polyethyleneterephthalate--Properties 2. Polyethyleneterephthalate  
--Decomposition

Card 2/2

ACCESSION NR: AP4019014

S/0062/64/000/002/0362/0363

AUTHORS: Korshak, V.V.; Oganessian, R.M.; Zamyatina, V.A.

TITLE: Polycondensation of N-substituted borazols with bis- $\beta, \beta'$ -aminodiethyl ester of trimethylenediboric acid

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 2, 1964, 362-363

TOPIC TAGS: triphenylborazol, methyltriphenylborazol, borazol, diboric acid bisbetabeta aminodiethyl, trimethylene diboric acid

ABSTRACT: The relation of the hydride character of the B-H bond in borazol which appears in the reactions of N-triphenylborazol with diols and polyols, was investigated particularly the relationship of this bond to the aminogroup. N-triphenylborazol and of B-methyl-N-triphenylborazol with bis- $\beta, \beta'$ -aminodiethyl ester of trimethylene diboric acid was reacted for this purpose. Since this ester is at the same time a dissecondary amine, it is sufficiently stable both hydrolytically and thermally sufficiently stable. Polymers were obtained whose structure is described and discussed. They are of linear or latticed structures and have molecular weights from 4250 to

Card 1/2



ACCESSION NR: AP4019014

4391.3. "The authors express their gratitude to L.I. Zakharkin and A.I. Kovredov for placing at their disposal the bis- $\beta$ ,  $\beta'$ -amino-diethyl ester of trimethylenediboric acid." Orig. art. has: 2 formulas

ASSOCIATION: Institut elementoorganicheskikh soyesdineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences, SSSR)

SUBMITTED: 08Jul63

SUB CODE: 0C

ENCL: 00

DATE ACQ: 27Mar64

NR REF SOV: 003

OTHER: 001

Card:

2/2

AS(IMP)-C/ RFD

5/0063/64/000/008/1941/1943

AUTHOR: Korshak, V. V.; Zasyatina, V. A.; Solomatina, A. I.

TITLE: Phenylphosphine-borane complex pyrolysis

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, No. 8, 1964, 1541-1543

ABSTRACT: In an attempt to prepare a homogeneous tridimensional net polymer of the composition  $(C_6H_5PBH)$  the pyrolysis of the phenylphosphine-borane complex at 150-2500 was performed for the first time. It was found that at 1500, the complex liberates a mole of hydrogen to form a (phenylphosphine)borane polymer with a mole-  
 ush

Corb 1/2

THE PYROLYSIS OF POLYMER

The process of decomposition, which is the splitting off of small molecules and the formation of a carbon-rich residue capable of being calcined in air. The pyrolysis is assumed to proceed as follows



Orig. art. has: 1 formula and 1 table.

1. The process of decomposition, which is the splitting off of small molecules and the formation of a carbon-rich residue capable of being calcined in air. The pyrolysis is assumed to proceed as follows

2. The process of decomposition, which is the splitting off of small molecules and the formation of a carbon-rich residue capable of being calcined in air. The pyrolysis is assumed to proceed as follows

3. The process of decomposition, which is the splitting off of small molecules and the formation of a carbon-rich residue capable of being calcined in air. The pyrolysis is assumed to proceed as follows

KORSHAK, V.V.; ZAMYATINA, V.A.; SOLOMATINA, A.I.

Pyrolysis of a phenylphosphine-borane complex. Izv. AN  
SSSR. Ser. khim. no.8:1541-1543 Ag '64. (MIHA 17:9)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

1. 24039-05

WT(M)/EPF(C)/EPK/ENF(J)/1

10-4/11-4/18-4

402(E)/2/1/014/1/1

EM/WW

ACCESSION NR: AP4047401

S/0062/64/000/010/1881/1882

33

30

Sidorov, I. A.

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1964, 1881-1882

TOPIC TAGS: nitroallyl, trimethylborazole, nitroallyl trimethylborazole reaction product, synthesis, polymerization

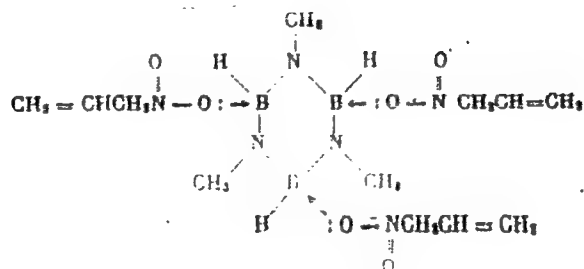
ABSTRACT: The reaction of 3-nitropropen-1 with N-trimethylborazole in ether solution at reduced temperature gave a white crystalline product corresponding to the formula  $(\text{NO}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NCH}_3)_3$ . The material did not melt, but gradually decomposed on heating from 180-300°C. It exploded in a sealed capillary at 130-140°C and was not reduced to the amine with Raney nickel. The material did not form a complex with methanol at room temperature, but dissolved in boiling benzene and on cooling separated as a powder insoluble in benzene or dimethylformamide, probably due to polymerization. IR data and physical properties in-

1/2

L 24839-65

ACCESSION NR: AP4047401

dicat formation of the complex:



Orig. art. has: 1 formula and 1 equation

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR  
(Institute of Elementoorganic Compounds, Academy of Sciences SSSR)

1964

ENCL: 00

1964

Card 2/2

L 20374-66 EWT(m)/ENP(j)/I/ETC(m)-6 NN/JN/JWD/RM  
 ACC NR: AP6006539 (A) SOURCE CODE: UR/0191/65/000/011/0016/0018  
 AUTHORS: Akimov, B. A.; Bekasova, N. I.; Zhigach, A. F.; Zamyatina, V. A.; Korshak, V. V.; Sarishvili, I. G.; Sobolevskiy, M. V.

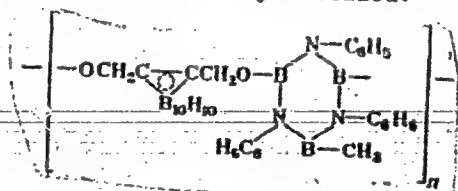
ORG: none

TITLE: Synthesis of thermostable polymers on the basis of borazole and carborane compounds

SOURCE: Plasticheskiye massy, no. 11, 1965, 16-18

TOPIC TAGS: copolymerization, boron compound, organoboron compound, thermal stability, polymer, organic synthetic process, thermomechanical property

ABSTRACT: The following polymers were synthesized:

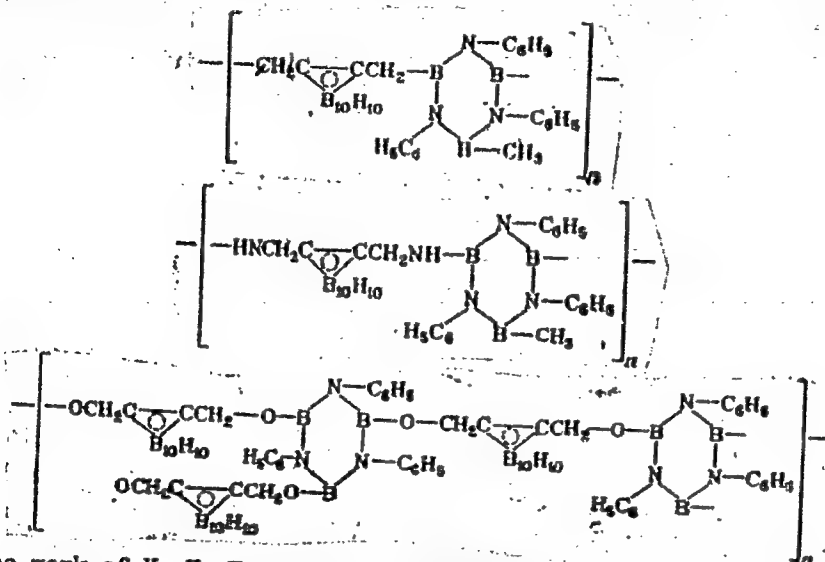


Card 1/3

UDC: 678.86

L 20374-66

ACC NR: AP6006539



to extend the work of V. V. Korshak, V. A. Zamyatina, L. M. Chursina, and N. I. Bekasova (Vysokomolek. soyed., 5, No. 8, 1963). The thermomechanical properties and the thermal stability of the synthesized polymers were determined. The experimental

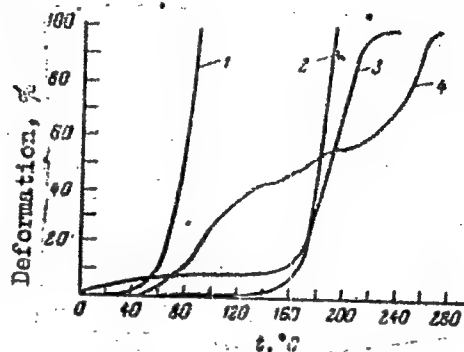
Card 2/3



L 20374-66  
ACC NR: AP6006539

results are presented graphically (see Fig. 1).

Fig. 1. Thermomechanical curves for the polymers obtained by the polymerization of: 1 - B-methyl-N-triphenylborazole and dichlorodimethylcarborane; 2 - B-methyl-N-triphenylborazole and bishydroxymethylcarborane; 3 - N-triphenylborazole and bishydroxymethylcarborane; 4 - B-methyl-N-triphenylborazole and diaminodimethylcarborane.



It was found that polymers synthesized from N-triphenyl and B-methyl-N-triphenylborazoles and di-(oxymethyl)-carborane possessed the highest thermal stability. It is suggested that the increased stability is due to the presence of the highly stable B-O bond in the molecule. Orig. art. has: 2 graphs and 4 equations.

SUB CODE: 0711/ SUBM DATE: none/ ORIG REF: 003/ OFH REF: 007

Card 3/3 vmb

L 43767366 EWT(m)/EMP(j) T WW/JW/JWD/AM

ACC NR: AP6029920

SOURCE CODE: UR/0413/66/000/015/0088/0088

INVENTOR: Korshak, V. V.; Zamyatina, V. A.; Oganesyan, R. M.

ORG: none

TITLE: Preparative method for an organoboron polymer Class 39, No. 184444/5

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 88

TOPIC TAGS: boron compound, organoboron polymer

ABSTRACT: An Author Certificate has been issued for a preparative method for an organoboron polymer based on borazine. To impart valuable properties [unspecified] to the polymer, N,N',N''-triphenylborazine and dihydroxymethyldecaborinene [sic] are heated together. [SM]

SUB CODE: 11/ SUBM DATE: 16Jun61/ ATD PRESS: SciS

Card 1/1 Rjm

UDC: 678.86.27

ZAMYATINA, V.A.; OGANESYAN, R.M.; SEVOST'YANOVA, V.V.; SIDOROV, T.A.

Reaction of nitroallyl with N-trimethylborazole. Izv. AN SSSR.  
Ser. khim. no.10:1881-1882 O '64. (MIRA 17:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.; KOMAROVA, L.G.

Polycondensation of N-triphenylborazole. Izv. AN SSSR Ser. khim.  
no.12:2223-2224 D '64 (MIRA 18:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



L 41351-65

ACCESSION NR: AP5001907

... was transformed into polymer products of two types, one of which was insoluble in benzene, the other soluble. Their composition and thermomechanical properties were investigated. It was established that the products formed are polymers of a linear and of a polyvulcanic structure. Orig. art. has: 2 figures.

ISSUED FROM: Institut elementoorganicheskikh soedineniy, Akademiya Nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences of the USSR)

KORSHAK, V.V.; BEKASOVA, N.I.; CHIKISHEV, Yu.G.; ZAMYATINA, V.A.;  
TSETLIN, B.L.; RAFIKOV, S.R.

Radiation synthesis of borazole-based polymers. Vysokom.  
soed. 5 no.10:1447-1450 0 '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KORSHAK, V.V.; OGANESYAN, R.M.; ZAMYATINA, V.A.

Polycondensation of N-substituted borazoles with bis- , amino-  
diethyl ester of trimethylenediboric acid. Izv. AN SSSR. Ser. khim.  
no. 2: 362-363 F '64. (MIRA 17:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



BEKASOVA, N.I.; ZAMYATINA, V.A.; KORSHAK, V.V.

Copolymerization of tri(ethylamino)boron and B-aminoborazoles with  
hexamethylene diisocyanate. Izv.AN SSSR. Ser.khim. no.1:172-174  
Ja '64. (MIRA 17:4)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

KORSHAK, V.V.; SOLOMATINA, A.I.; BEKASOVA, N.I.; ZAMYATINA, V.A.

Polycondensation of trimeric dimethylphosphinoborane with boron-substituted borazoles. Izv. AN SSSR Ser.khim. no.10:1856-1857 0  
'63. (MIRA 17:3)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

ACCESSION NR: AP4010050

S/0062/64/000/001/0172/0174

AUTHOR: Bekasova, N. I.; Zamyatina, V. A.; Korshak, V. V.

TITLE: Copolymerization of tri(ethylamino)boron and B-aminoborazoles with hexamethylenediisocyanate

SOURCE: AN SSSR. Izvestiya. Ser. khim., no. 1, 1964, 172-174

TOPIC TAGS: boro-organic polymer, linear boro-organic polymer, cross linked boroorganic polymer, tri(ethylamino)boron hexamethylene-diisocyanate copolymer, B-aminoborazole hexamethylenediisocyanate copolymer, borazole copolymer

ABSTRACT: Linear polymers containing B-N bonds were obtained by copolymerizing tri(ethylamino)boron and hexamethylenediisocyanate. Essentially the same product was obtained with reactant ratios of 1:1 and 1:1.5. New linear boro-organic polymers containing molecules of the borazole ring in the basic chain were obtained by copolymerizing boron-substituted borazoles with hexa-

Card 1/2

ACCESSION NR: AP4010050

methylenediisocyanate. Reaction of B-triethylamino-N-triethylborazile with hexamethylenediisocyanate, 1:1, gives a linear polymer; product of 1:1.5 ratio is a polymer cross-linked in several places with the diisocyanate as evidenced by higher fusion temperature and lowered boron content. Reaction of B-tri-(dimethylamino)borazole with hexamethylene diisocyanate, 1:1 and 1:1.5, gives a linear polymer. Here the lowered reaction temperature indicates the catalytic action of the dimethylamino group situated at the B atom. However, block polymerization of a 1:1.5 mixture at higher temperatures does give a cross linked polymer. Orig. art. has; 1 table and 1 equation.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences SSSR)

SUBMITTED: 08Jul63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: CH

NO REF SOV: 001

OTHER: 004

Card: 2/2

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.; OGANESYAN, R.M.;  
SOLOMATINA, A.I.

Polyesters of boric acid. Izv. AN SSSR. Ser. khim. no. 8: 1496-1502  
Ag '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Boric acid) (Esters)

I 14531-63 EPR/EPP(a)/EWP(1) TLT(m)/ENS/TS(2) 2 AFETC/ASD/OST 3-4/00

ADMISSION NO. AP1004-00

3/0190/63,005/008,1127/1129

AUTHOR: Korshak, V. V.; Zamyatina, V. A.; Chursina, L. M.; Bekasova, N. I. 82

TITLE: Polycondensation of 2,4,6-trichloroborazine with difunctional compounds

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 5, no. 8, 1963, 1127-1129

TOPIC TAGS: methylphosphinylpolyborazine, tetramethyldisiloxypolyborazine, 2,4,6-trichloroborazine, dibutyl methylphosphonate, 1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane, dimethyl sebacate, 2,4,6-trichloroborazine-dibutyl methylphosphonate copolymer, 2,4,6-trichloroborazine-1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane copolymer, 2,4,6-trichloroborazine-dimethyl sebacate copolymer, polycondensation

ABSTRACT: Heat-resistant high-melting insoluble copolymers have been synthesized by polycondensation (at 100C under nitrogen, then at 240C and 2 mm Hg) of 2,4,6-trichloroborazine (I) with dibutyl methylphosphonate (II), 1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane (III), or dimethyl sebacate (IV). Compounds I and II yield a pale yellow copolymer which is insoluble in the common organic solvents, melts above 300C, and has a reduced viscosity in cresol of 0.19 [concentration unspecified]. The copolymer is slowly hydrolyzed by air moisture and

Card 1/42

L 14531-63

ACCESSION #: AP3001698

cold water. The formula (1) of the copolymer is given in the Enclosure; according to elemental-analysis data,  $n = 7$ . Compounds I and III yield a brittle dark-brown copolymer melting above 300C and with a reduced viscosity in cresol of 0.16 [concentration unspecified]. The copolymer is insoluble in the common solvents and is stable to air moisture; its formula (2), determined by elemental analysis, is given in the Enclosure. Interaction of I and IV results in thermal degradation in addition to polycondensation and yields a copolymer with an increased ash content. The copolymer melts above 300C and has a reduced viscosity of 0.2 [solvent and concentration unspecified]. Orig. art. has: 2 formulas.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 07Dec61

DATE ACQ: 28Aug63

ENCL: 02

SUB CODE: CH, MA

NO REF SOV: 000

OTHER: 002

Card 2/12

KORSKAH, V.V.; ZAMYATINA, V.A.; OGANESYAN, R.M.

Polycondensation of N-triphenylborazole with polyols. Izv. AN SSSR.  
Otd.khim.nauk no.10:1850-1852 0 '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Borazine) (Alchols) (Polymerization)



KORSHAK, V.V.; ZAMYATINA, V.A.; OGANESYAN, R.M.

Copolymerization of nitrogen-substituted borazoles with hexamethylene diisocyanate. Izv.AN SSSR.Otd.khim.nauk no.9:1669-1670 S '62.  
(MIRA 15:10)

1. Institut elementoorganicheskikh sovedininy AN SSSR.  
(Borazine) (Cyclohexane) (Polymerization)

KORSHAK, V.V.; ZAMYATINA, V.A.; OGANESYAN, R.M.

Polycondensation and copolymerization of *li*-substituted  
borazole with bifunctional compounds. Vysokom.soed. 4  
no.4:615-616 Ap '62. (MIRA 15:5)  
(Borazine) (Polymerization)  
(Condensation products (Chemistry))

KORSHAK, V.V.; ZAMYATINA, V.A.; MA ZHUY-ZHAN' [Ma Jui-jan]; OGANESYAN, R.M.

Polyesters and polymeric salts of boronic and 1,4-benzenediboronic acids. Vysokom.sped. 4 no.2:183-191 F '62. (MIRA 15:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Boronic acid) (Benzenediboronic acid)

KORSHAK, V.V.; MA ZHUY-ZHAN' [Ma Jui-Jan]; ZAMYATINA, V.A.

Polyaminopolyanhydrides of 1,4-benzenediboronic acid. Vyskkm.-  
soed. 4 no.2:192-195 F '62. (MIRA 15:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Benzenediboronic acid)

36303

S/190/62/004/004/019/019  
B117/B138

53833

11.1380

AUTHORS:

Korshak, V. V., Zamyatina, V. A., Oganessian, R. M.

TITLE:

Polycondensation and copolymerization of N-substituted  
boroazole with bifunctional compounds

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, v. 4, no. 4, 1962,  
615-616

TEXT: This letter to the editor contains the information that N-substituted  
borazole is suitable for polycondensation and copolymerization. Heat-  
resistant polymers are formed thereby, which, in individual cases, are  
highly elastic over a wide temperature range (up to 350°C). Hydrogen was  
separated during the reaction of N-phenyl boroazole with eicosane-diol, and  
a polymer, rubberlike at room temperature, was found. Migrational copoly-  
merization of N-triphenylboroazole with hexamethylene diisocyanate produced  
a polymer with a relative viscosity of the solution in cresol of 0.13 and a  
brittle point of 145°C:  $C_{30}H_{36}B_3N_6O_3$ . A similar polymer with a relative  
viscosity of 0.54 was obtained from trimethylboroazole. Copolymerization of  
N-phenyl boroazole with divinyl benzene produced a polymer insoluble in  
Card 1/2

Polycondensation and copolymerization...

S/190/62/004/004/07/019  
B117/B138

cresol with a brittle point of 105°C:  $C_{33}H_{33}B_3N_3$ . [Abstracter's note:  
Essentially complete translation.]

SUBMITTED: October 14, 1961

Card 2/2

33375

15.8150

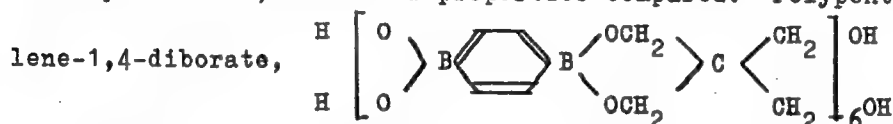
S/190/62/004/002/004/02;  
B110/B101

AUTHORS: Korshak, V. V., Zamyatina, V. A., Ma Jui-jan, Oganessian, R.M.

TITLE: Polyesters and polymeric salts of boric and 1,4-phenylene diboric acids

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 188-191

TEXT: V. A. Zamyatina and N. I. Bekasova (Usp. khimii, 30, 48, 1961) described the synthesis of highly thermostable polyesters of boric and substituted boric acids. In the present study, the polyesters of boric acid and 1,4-phenylene diboric acid (I) with pentaerythrite (II), the Zn- and Sn-organic salts of pentaerythrite hydroxydiboric acid (III) and I were synthesized, and their properties compared. Polypentaerythrite pheny-



is unmeltable and resistant to heat and hydrolysis. For producing a linear  
Card 1/3

Polyesters and polymeric salts...

33375  
S/190/62/004/002/004/02"  
B110/B101

polyester, boric acid was condensed with pentaerythrite equimolecularly for 10 hr at 150 - 180°C in N<sub>2</sub> flow. The polymeric salts of III had linear structure. The molecular weight of unsoluble polymers hydrolyzing in aqueous alkali could not be determined. The Zn salt of III contains more organic and fewer mineral fractions than had been calculated. Polycondensation of I with II yielded a polyester of calculated composition which was, however, not linear and unsoluble. Anhydride was formed during the synthesis of polymeric salt of I from metal acetates, and some tributyl borate was separated out during that of Zn salt. Polyesters and salts resemble each other in mechanical and thermomechanical respect, and in outer appearance. The brittle white polyesters melt at >300°C. The polyester of I does not hydrolyze in the cold, that of boric acid does. The yellow brittle Sn-organic salts hydrolyze in the cold, and have low softening temperatures. The white Zn salts are friable, hydrolyze well, and melt at >500°C. There are 1 figure, 2 tables, and 2 references: 1 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: W. R. Bamford, S. Fordham. High Temperature Resistance and Thermal Degradation of Polymers, Symposium, Sept. 1960, London, p. 127.

Card 2/3



Polyesters and polymeric salts...

33375  
S/190/62/004/002/004/021  
B110/B101

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR  
(Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: February 2, 1961

X

Card 3/3

33376

15.8150

S/190/62/004/002/005/021  
B110/B101

AUTHORS:

Korshak, V. V.; Ma Jui-jan, Zamyatina, V. A.

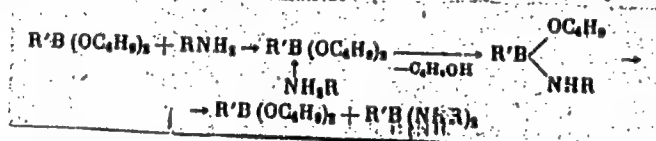
TITLE:

Polyamino polyanhydrides of 1,4-phenylene diboric acid

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 192 - 195

TEXT: According to B. M. Mikhaylov and P. M. Aronovich (Zh. obshch. khimii, 29, 3124, 1959), esters of substituted boric acids may exchange the alkoxy group for the amino group of aromatic amines, and disproportionate to organo-boron diamines:

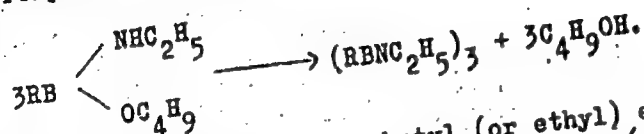


The latter may condense to borazols. Borazol is also formed from aliphatic amino esters:

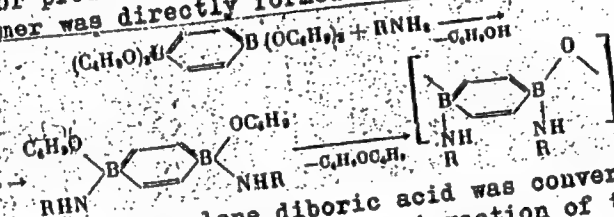
Card 1/3

33376  
S/190/62/004/002/005/021  
B110/B101

Polyamino polyanhydrides...



The reaction of tetra-n-butyl (or ethyl) ester of 1,4-phenylene diboric acid with aromatic (toluidine) and aliphatic (octylamine, hexamethylene diamine) amines and diamines for producing polymers with the B-N bond was studied. The organoboron polymer was directly formed:



the diamino diester of 1,4-phenylene diboric acid was converted to a polyamino anhydride under the test conditions. Interaction of two alkoxy groups with formation of an anhydride bond proceeds more readily than that of one alkoxy with one amino group or that of two amino groups. A minimum of 300°C is required for the latter reaction. All polymers are stable and high-melting.

33376

S/190/62/004/002/005/021

B110/B101

Polyamino polyanhydrides...

melting (m. > 300°C), those from monoamines are linear, those from diamines are steric and unsoluble, and hydrolyze in boiling water. During polycondensation of tetraethoxy-1,4-phenylene diborate with anhydrous hydrazine,  $\text{NH}_3$  and a volatile boron compound are probably separated. There are 1

figure, 1 table, and 3 references: 2 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: D. R. Nielsen, W. E. McEwen, J. Amer. Chem. Soc., 79, 3081, 1957.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR  
(Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: February 2, 1961

Card 3/3

KORSHAK, V.V.; BEKASOVA, N.I.; ZAMYATINA, V.A.; ARISTARKHOVA, G.I.

Copolymerization of bis (alkylamino) alkyl- or arylborine with  
organic diisocyanates. Vysokom.soed. 3 no.4:521-524 Ap '61.  
(MIRA 14:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Borine) (Isocyanic acid)

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.; MA ZHUY-ZHAN' [MA JUI-JAN]

Copolymerization of boron-substituted borazoles with hexamethylene diisocyanate. Vysokom.soed. 3 no.4:525-529 Ap '61.

(MIRA 14:4)

1. Institut elementoorganicheskikh soedineniy AN SSSR.  
(Borazole) (Isocyanic acid)

15.8114 2209,1372

21131

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B101/B207

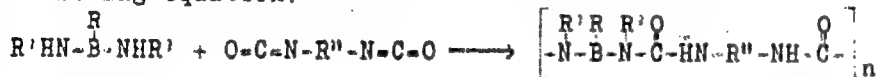
11, 22, 12

AUTHORS: Korshak, V. V., Bekasova, N. I., Zamyatina, V. A.,  
Aristarkhova, G. I.

TITLE: Copolymerization of bis-(alkylamino-)alkyl- or aryl boron with  
organic diisocyanates

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 521-524

TEXT: The papers by B. M. Mikhaylov et al. (Ref. 1: Izv. AN SSSR, Otd. khim. n., 1957, 1123; Ref. 2: ibid., 1958, 777; Ref. 3: Dokl. AN SSSR, 121, 656, 1958) showed that polycondensation of alkyl- or aryl boron di- chlorides with primary amines does not lead to linear polymers, but to cyclic trimers. In the present study, the synthesis of linear polymers by copolymerization of bis-(alkylamino-)alkyl- or aryl boron with hexamethylene diisocyanate or toluylene diisocyanate was carried out according to the following equation:



.. Card 1/4

21131

S/190/61/003/004/004/014  
B101/B207

Copolymerization of ...

The following compounds were synthesized as initial substances: 1) bis-(methylamino)-butyl boron; 2) bis-(ethylamino)-butyl boron (according to Ref. 3); 3) bis-(methylamino)-, 4) bis-(ethylamino)-, and 5) bis-(phenylamino)-phenyl boron (according to Ref. 1). Copolymerization was carried out at a molar ratio of 1 : 1 and three-hr heating to 50°C, then to 100, 150, 200, 250, and 275°C (bis-(methylamino)-butyl boron) was only heated to 150°C). The authors used ampoules which were evacuated after passing through of N<sub>2</sub>. The monomer was obtained from the copolymers by means of benzene, and the copolymer composition was determined by means of elementary analysis. The intrinsic viscosity of the 5% copolymer solution in tricresol was determined at 20°C. Tables 1 and 2 give the data for the copolymers. The figure shows the thermomechanical curve of the copolymer from bis-(phenylamino)-phenyl boron with hexamethylene diisocyanate. The copolymers obtained contain B, N, and C atoms in the chain. They are solid, brittle, transparent, yellowish or reddish substances which are stable to air moisture and do not decompose, even when heated beyond the melting point. There are 1 figure, 2 tables, and 3 Soviet-bloc references.

ASSOCIATION: Institut elementorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds, AS USSR)

Card 2/4



21131

S/190/61/003/004/004/014  
B101/B207

Copolymerization of ...

SUBMITTED: July 1, 1960

Table 1: Copolymers with hexamethylene diisocyanate.

Legend: 1) initial compound; 2) intrinsic viscosity; 3) softening temperature; 4) weight increase after three-day storage in the air; 5) polymer residue after 1-hr boiling with water; a) insoluble, swells.

Table 2: Copolymers with toluylene diisocyanate.

Legend as to Table 1.

Исходный органиоборднанни (1)	Приведенная вязкость (2)	Температура размягчения, °C (3)	Увеличение в peso после трех суток пребывания на воздухе, % (4)	Остаток полимера после кипячения в воде в течение 1 часа, % (5)
(CH <sub>2</sub> NH) <sub>2</sub> BC <sub>2</sub> H <sub>4</sub>	0,28	60	0,0	71,7
(C <sub>6</sub> H <sub>4</sub> NH) <sub>2</sub> BC <sub>2</sub> H <sub>4</sub>	0,10	70	0,0	0,0
(CH <sub>2</sub> NH) <sub>2</sub> BC <sub>2</sub> H <sub>4</sub>	Но растворяется, набухает	160	0,0	69,0
(C <sub>6</sub> H <sub>4</sub> NH) <sub>2</sub> BC <sub>2</sub> H <sub>4</sub>		130	0,0	0,0
(C <sub>6</sub> H <sub>4</sub> NH) <sub>2</sub> BC <sub>2</sub> H <sub>4</sub>		115	0,0	0,0

Card 3/4

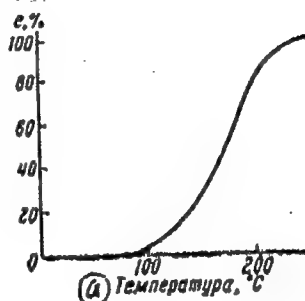
Copolymerization of . . .

21131  
S/190/61/003/004/004/014  
B101/B207

Table 1 CONT.

Исходный орга- ноборданин (1)	Приведенная вязкость (2)	Температура размягчения, °C (3)	Увеличение в весе после трех суток пребывания на воздухе, % (4)	Остаток полимера после наплавления в воде в течение 1 часа, % (5)
(CH <sub>3</sub> NH) <sub>2</sub> BC <sub>6</sub> H <sub>5</sub>	0,10	60-67	0,0	0,0
(C <sub>6</sub> H <sub>5</sub> NH) <sub>2</sub> BC <sub>6</sub> H <sub>5</sub>	0,08	50	1,6	0,0
(CH <sub>3</sub> NH) <sub>2</sub> BC <sub>6</sub> H <sub>5</sub>	0,06	150	0,0	0,0
(C <sub>6</sub> H <sub>5</sub> NH) <sub>2</sub> BC <sub>6</sub> H <sub>5</sub>	0,10	140-170	0,0	0,0
(C <sub>6</sub> H <sub>5</sub> NH) <sub>2</sub> BC <sub>6</sub> H <sub>5</sub>	0,10	140-160	1,4	93,7

Figure. Thermomechanical properties  
of the copolymer from bis-(phenyl-  
amino)-phenyl boron with hexa-  
methylenediisocyanate.  
Legend: a) temperature.



Card 4/4

15.8114 2209, 1372

211,2  
S/190/61/003/004/005/014  
B101/B207

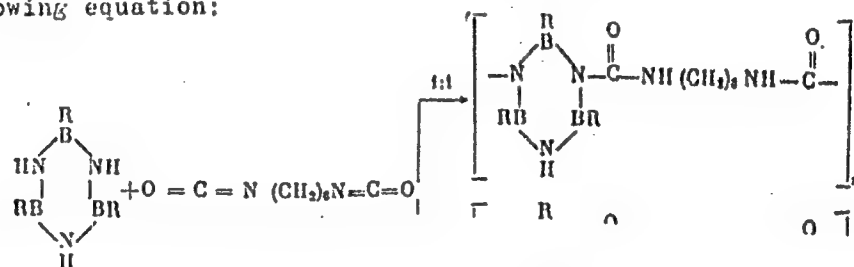
11.2212

AUTHORS: Korshak, V. V., Zamyatina, V. A., Bekasova, I. I., Ma Jui-jan

TITLE: Copolymerization of boron-substituted borazoles with hexamethylene diisocyanate

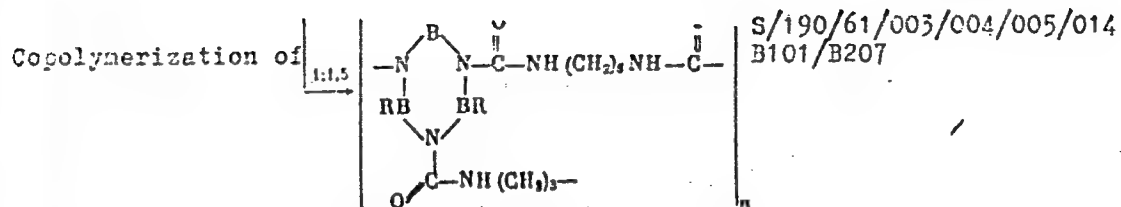
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 525-529

TEXT: In the present study, the authors aimed at obtaining heat resistant polymers. They proceeded from boron-substituted borazoles which, by way of migration copolymerization with hexamethylene diisocyanate, reacted according to the following equation:



Card 1/4

21132



The molar ratio of components was 1 : 1 or 1 : 1.5. The boron-substituted borazoles were synthesized according to the method proposed by B. M. Mikhaylov, T. V. Kostroma (Ref. 8: Izv. AN SSSR, Otd. khim. n., 1957, 1125). A. F. Zhigach provided trimethyl borazole. The compound was copolymerized in glass ampoules from which air had been displaced by means of  $\text{N}_2$  and which, subsequently, were evacuated and sealed. The ampoules were heated for 3 hr to 100°C and 3 hr each to 150, 200, and 250°C. Table 1 gives the data of the polymers obtained. In the case of aliphatically substituted borazoles, thermomechanical testing yielded the highest softening temperature for trimethyl borazole. Triphenyl borazole yielded copolymers which melt only at high temperatures. [Abstracter's note: The authors provide no data on softening temperature and melting point.] The resistivity of the copolymer from B-trimethyl borazole with hexamethylene diisocyanate 1 : 1.5, was  $2.5 \cdot 10^{11}$  ohm-cm,  $\tan \delta = 0.0072$  at  $10^3$  cps. at room temperature. At 150°C, Card 2/4

21172

S/190/61/003/004/005/014  
B101/B207

Copolymerization of ...

these values were  $8 \cdot 10^{11}$  ohm-cm, and 1.1, respectively. (This study was made by T. S. Knyazeva and Z. V. Lyamkina). The experiment of copolymerizing the components in dinitrile solution (boiling point  $250^{\circ}\text{C}$ ), resulted in a lower copolymer yield (60-65%) with only 25-33% of the calculated boron content, and, probably, consisted mainly of polyisocyanuric acid. The thermal properties of these copolymers differed greatly from those of the copolymers obtained without solvent. There are 1 figure, 2 tables, and 10 references: 3 Soviet-bloc and 9 non-Soviet-bloc. The 2 references to English-language publications read as follows: S. J. Grosz, S. F. Stafiej, J. Amer. Chem. Soc., 80, 1357, 1958; M. Lappert, Proc. Chem. Soc., 1959, no. 2, 59.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR  
(Institute of Elemental Organic Compounds, AS USSR)

SUBMITTED: July 1, 1960.

Card 3/4

X

21132

S/190/61/003/004/005/014

B101/B207

Copolymerization of ...

Table 1. Copolymers from B-substituted borazoles with hexamethylene diisocyanate.

Legend: 1) R in (RBNH)<sub>3</sub>; 2) molar ratio borazole: diisocyanate; 3) intrinsic viscosity; a) in cresol; b) in H<sub>2</sub>SO<sub>4</sub>; 4) polymer residue after 1-hr boiling in water; 5) shape of the polymer; 6) gelatinous substance, hardening in the air; 7) insoluble, swells; 8) transparent, solid substance; 9) ditto; 10) transparent, rubber-like resin.

Card 4/4

1) R в (RBNH) <sub>3</sub>	2) Молярное соотношение боразол : диизоцианат	3) Приведенная вязкость		4) Остаток полимера после ин-ижения в воде в течение 1 ч, %	5) Внешний вид
		а) в крезоле	б) в серной кислоте		
CH <sub>3</sub>	1:1	0,36	—	73,6	а) Желатинообразное вещество, твердеет на воздухе
	1:1,5	б) Не растворяется, набухает	б) Не растворяется, набухает	91,7	б) Прозрачное твердое вещество
C <sub>2</sub> H <sub>5</sub>	1:1	0,34	0,14	—	в) То же
	1:1,5	б) Не растворяется, набухает	б) Не растворяется, набухает	61,0	г) " "
n-C <sub>4</sub> H <sub>9</sub>	1:1	г) То же	0,10	—	д) Прозрачная научнопо-добная смола
	1:1,5	" "	0,22	64,8	е) Прозрачное твердое ве-щество
iso-C <sub>4</sub> H <sub>9</sub>	1:1	0,24	0,06	—	ж) То же
	1:1,5	б) Не растворяется, набухает	б) Не растворяется, набухает	—	з) " "
C <sub>6</sub> H <sub>5</sub>	1:1	з) То же	з) То же	96,7	" "
	1:1,5	" "	" "	58,8	" "

ZAMYATINA, V.A.; BEKASOVA, N.I.

Polymeric boron compounds. Usp. khim. 30 no. 1:48-59 Ja '61.  
(MIRA 14:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Boron compounds) (Polymers)

S/074/61/030/001/002/003  
B013/B055

AUTHORS: Zamyatina, V. A., Bekasova, N. I.

TITLE: Polymer Compounds of Boron

PERIODICAL: Uspekhi khimii, 1961, Vol. 30, No. 1, pp. 48-59

TEXT: The present survey deals with publications on the preparation of polymer compounds of boron and on studies of monomer boron compounds and formation of polymers. The following Soviet authors who work in these fields are mentioned: B. M. Mikhaylov, F. B. Tutorskaya (Refs. 16 and 17); A. V. Topchiyev, Ya. M. Paushkin, A. A. Prokhorova (Refs. 18 and 19); V. M. Sleptsov, G. V. Samsonov (Ref. 36); V. V. Korshak, V. A. Zamyatina, N. I. Bekasova, Ma Zhuy zhan' (Ref. 47); A. F. Zhigach, Ye. B. Kazakova, I. S. Antonov (Ref. 55); K. A. Andrianov, L. M. Volkova (Ref. 80); A. V. Topchiyev and coworkers (Ref. 89); I. V. Kamenskiy, I. K. Sanin, V. I. Itinskiy, G. D. Krylova (Ref. 90). As may be seen from the comparatively small number of publications dealing with polymer compounds of boron, this branch of high-molecular chemistry is only at the stage of development. The synthetic methods are not worked out thoroughly, the

Card 1/3



Polymer Compounds of Boron

S/074/61/030/001/002/003  
B013/B055

properties of the polymers are not always described and the polymers themselves are scarcely available since many of them were only obtainable in quantities of a few grams. Owing to the demands of modern engineering, however, studies in this field are being continued. On the basis of theoretical premises it seems possible to obtain high-melting polymers resistant to heat and chemical attack. Phosphoborines, which are expected to possess good mechanical properties, seem most promising in this respect. In all probability, polymers containing borazole rings in the main chain will have a rigid spatial structure. Studies of various linear polymer compounds containing -B-N- and -B-P-chains showed that they are not high-melting, less resistant to heat and can be transformed into low-molecular cyclic compounds at high temperatures (phosphoborines). The properties of polymers containing -B-C- bonds have scarcely been described. A disadvantage of many of these compounds is their readily occurring oxidation by atmospheric oxygen. Though, in general, the polyanhydrides and polyesters of boric acid and boric-acid derivatives are easily hydrolyzable, various individual compounds are highly resistant to hydrolysis, oxidation and heat. There are 100 references: 22 Soviet, 43 US, 14 British, 9 French, and 18 German.

Card 2/3

Polymer Compounds of Boron

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001963720019-3"

ASSOCIATION: In-t elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

Card 3/3

86302

15.8114  
11.2212

2205

S/190/60/002/008/017/017  
B004/B054

AUTHORS: Korshak, V. V., Zamyatina, V. A., Bekasova, N. I.,  
Ma Zhuy-zhan'

TITLE: Copolymerization of Boron-substituted Borazoles With Hexa-  
methylene Diisocyanate

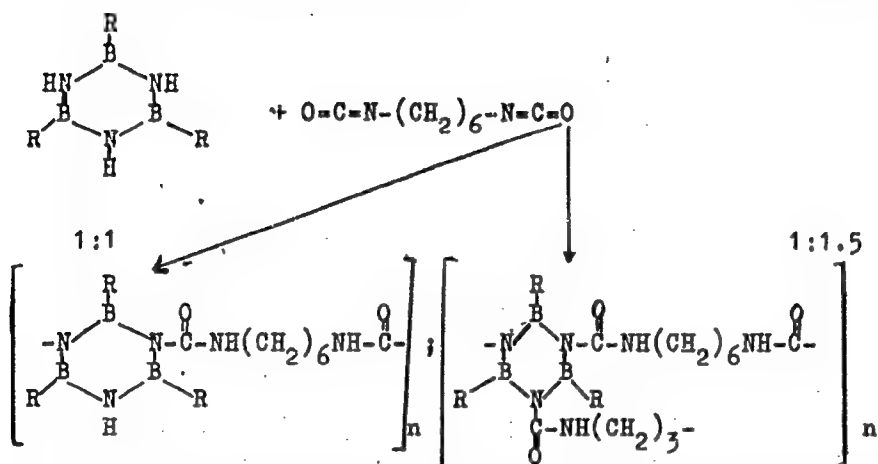
PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8,  
p..1287

TEXT: In this letter to the editor, the authors report on the successful  
copolymerization of boron-substituted borazoles with hexamethylene di-  
isocyanate. They obtained transparent, glassy, yellowish substances. The  
following reaction diagram is given:

Card 1/2

Copolymerization of Boron-substituted Borazoles  
With Hexamethylene Diisocyanate

86302  
S/190/60/002/008/017/017  
B004/B054



Linear or three-dimensional copolymers were obtained depending on the ratio of components.

SUBMITTED: February 16, 1960  
Card 2/2

KORSHAK, V.V.; ZAMYATINA, V.A.; YUKEL'SON, I.I.; BEKASOVA, N.I.

Polycondensation in a thin layer. Khim.nauka i prom. 4 no.4:  
546-547 '59. (MIRA 13:8)

1. Institut elementoorganicheskikh soedineniy Akademii nauk SSSR.  
(Condensation products (Chemistry))

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKSOVA, N.L.; MA ZHUY-ZHAN' [Ma Jui-jan]

Copolymerization of boron-substituted borazoles with hexamethylene diisocyanate. Vysokom. soed. 2 no.8:1287 Ag '60.

(MIRA 13:9)

(Borazole)

(Isocyanic acid)

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.

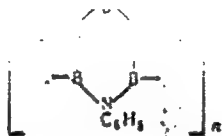
Heterochain polyesters. Part 25: Polycondensation in a thin layer. Vysokom.soed. 1 no.11:1586-1592 N '59. (MIRA 13:5)

1. Institut elementoorganicheskikh soedineniy AN SSSR.  
(Condensation products (Chemistry))

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1964, 2223-2224

ABSTRACT: The thermal stability of 1,3,5-triphenylborazine (I) and its polymer (II) was studied. Evolution of hydrogen and polycondensation to form a polymer with a molecular weight of 7000. The polymer is trans-  
partly hydrolyzes in cold and boiling water. IR analysis suggests

Card 1/2



041140-65

ACCESSION NP: AP5001600

Leakage of 11 to 4000 caused by polymerization, 11 to 4000

11 to 4000  
11 to 4000

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akade-  
mii Nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences.

SUBMITTED: 04May64

ENCL: 01

SUB CODE: OC, GC

A.D. PRESS: ...

Card 2/2



ZAMYATINA, V. D.

26468 Opredeleniye mineral'noy i organicheskogo fosfora v okrashennykh vytyazakh pri pomoshchi zlektrofotokolorimetri. trudy vsesoyuz. nauch.-issled. In-Ta udobreniy, agrotekhniki i agropochvovedeniya im gedroytsa, vyp, 29, 1949, s. 19F-206

SO: LETOPIS' NO. 35, 1949

ZAMYATINA, V.B.; CHERNIKOVA, T.N.

Soil Moisture

Quick method for determining soil moisture. Sov.agron. 10, no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 1953/ Unclassified.

Zamyatina V. B.

USSR.

... in the study of  
... Zamyatina. *Pecherodnie* 1954.  
No. 10, pp. 1-10.

KARPINSKIY, N.P.; ZAMYATINA, V.B.

Phosphate level of soils [with summary in English]. Pochvovedenie  
no.11:27-39 N '58. (MIRA 11:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut udobreniy i  
agropochvovedeniya.  
(Minerals in soil) (Phosphates)

Ca 15

Phosphoric acid combined with soil organic matter.  
 N. P. Kargin and V. B. Zamyatina. Proc. Geol. Soc.  
 Inst. For. (Moscow) 2, 133-137 (1933). - Soil org.  
 matter is destroyed by  $H_2O_2$ , and  $P_2O_5$  is leached out with  
 0.05 N HCl. The  $P_2O_5$  combined with org. matter in  
 chernozems and podzols amts. to 60% of the total. (Abstr.)  
 tion with  $H_2O_2$  converts it into a difficulty sol. form. B. C. A.

ASD-51A METALLURGICAL LITERATURE CLASSIFICATION

SECTION	SUBSECTION	DESCRIPTOR	CLASSIFICATION
1	1	1	1
2	2	2	2
3	3	3	3
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99	99	99	99
100	100	100	100

C.A.

15

The determination of nitrates in soils with indigo... V. D. Zamyatina, *Soviet Agron.* 1950, No. 7, 68-69. The determination is based on the reaction of the oxidation of indigo blue to the colorless isatin with  $\text{HNO}_3$ . The intensity of the color of the residual indigo serves as the measure of the quantity of nitrate. Twenty g. of air-dry soil is placed in a 100-ml. flask, 50 ml. of 0.1 N KCl is added, shaken for 5 min., and filtered. Two ml. of the filtrate is placed in a test tube and 0.5 ml. of the standard indigo soln. is added. (The indigo standard is prepd. by heating on a water bath 28 g. fuming  $\text{H}_2\text{SO}_4$  to which 4 g. of indigo blue is added. The mixt. is heated until all of the indigo goes into soln. When cold, the soln. is made up to 100 ml. This is soln. A. Ten ml. of A is dild. with  $\text{H}_2\text{O}$  to 250 ml. which gives soln. B. Nine ml. of B is dild. to 50 ml. and this is the standard soln. It is prepd. fresh every day. Soln. B can be kept for 6 months.) To it, 2 ml. of  $\text{H}_2\text{SO}_4$  (sp. gr. 1.84) is added and, after standing for 10 min., 1.5 ml.  $\text{H}_2\text{O}$  is added. The standard solns. are made up by taking 0.1412 g.  $\text{KNO}_3$  dissolved in 0.1 N soln. KCl, made up to 1 l. Two, 4, 6, 8, 10, 12, 14, and 16 ml. of this soln. are dild. to 100 ml. with 0.1 N KCl. Each one of these tubes receives 0.5 ml. of the indigo soln. The standards represent 2, 4, 6, etc. mg. nitrate N. It is claimed that this method works well. It is shown that  $\text{H}_2\text{O}$  exts. can be used in place of KCl (the preference for KCl is justified, since it gives a clear soln.). J. S. Joffe

LUKASHEV, K.I.; ZHUKHOVITSKAYA, A.L.; ZAMYATKINA, A.A.

Heavy metals in the surface waters of the Pripet Polesye in the  
White Russian S.S.R. Dokl. AN BSSR 9 no.3:183-186 M. '65.  
(MIRA 18:6)

1. Laboratoriya geokhimicheskikh problem AN BSSR.

L 14962-63

EWI(q)/EWI(m)/EDS AFETC/ASD/ESD-3 RM/JD/JG

ACCESSION NR: AP3003681

S/0186/63/005/003/0294/0298

69  
63

AUTHORS: Zamyatnina, V. K.; Chikisheva, L. A.

TITLE: Quantitative determination of the total rare earth elements of ruthenium, palladium and platinum in metallic beryllium by activation method 27 27

SOURCE: Radiokhimiya, v. 5, no. 3, 1963, 294-298

TOPIC TAGS: rare earth element, ruthenium, palladium, platinum, beryllium, activation analysis.

ABSTRACT: A method for the separation and purification of Ru<sup>105</sup>, Pd<sup>109</sup>, and Pt<sup>197</sup> from a sample of metallic beryllium has been developed. Ruthenium is separated through distillation in the form of RuO<sub>2</sub> from a perchloric acid solution. Palladium and platinum are then precipitated as sulfides. Palladium is complexed with dimethylglyoxime after the dissolution of sulfides in 3 N HCl. Platinum remains in the solution. Palladium glyoxime was filtered out and dissolved in aquaregia after which it was extracted from the solution with tetrabutylphosphate. Platinum was also purified by extraction from tetrabutylphosphate in 6 N HCl. The sum of the rare-earths elements was determined by a radiochemical separation with Dy<sup>165</sup> on a separate metallic beryllium sample. (The participants in this

Card 1/2



L 14962-63

ACCESSION NR: AP3003631

work were: A. A. Yegorova, M. A. Presnyakova, V. A. Mavrina, B. A. Razuvaev,  
P. P. Shevchenko and G. Ya. Rudakov." Orig. art. has 3 tables and 1 figure.

ASSOCIATION: none

SUBMITTED: 13Jan62

DATE ACQ: 07Aug63

ENCL: 00

SUB CODE: CH

NO REF SOV: 002

C'HER: 000

Card 2/2

ZAMETATINA: Z.I., doklad

late results of colpocystitis with free autotransplantation. Akush.  
i gine. 40 no.3:124-125 My-Ju '64. (MIRA 18:6)

I. Kafedra akusherstva i ginekologii leshchego fakul'teta (zav. -  
prof. A.V.Vikulov) I'vovskogo meditsinskogo instituta.

VIKULOV, A.V., prof.; ZAMYATINA, Z.I., dotsent; PONOMAR'OVA, A.Ya.,  
assistent; VIKTORA, V.A., ordinator

Use of hinofort for the prevention and treatment of early  
puerperal hemorrhage. Ped., akush. i gin. 24 no. 1: 57-58 '62.  
(MIRA 16:8)

1. Kafedra akusherstva i ginekologii (zav. - prof. A.V. Vikulov)  
L'vovskogo meditsinskogo instituta (rektor - prof. L.M.  
Kuzmenko).

(HEMORRHAGE, UTERINE) (ERGOT ALKALOIDS)

ZAMYATINA, Z.I., dots.

Atonic hemorrhage in missed abortion. Ped. akush. i gin. 22  
no. 1:44-45 '60. (MIRA 13:8)

1. Akushersko-ginekologicheskaya klinika (zav. - prof. A.V.  
Vikulov) L'vovskogo meditsinskogo instituta (dir. - prof. L.M.  
Kuzmenko).  
(HEMORRHAGE, UTERINE) (ABORTION)

ZAMYATINA, Z.I., dotsent.

Free autotransplantation technique for colpoptosis. Akush.  
i gin. no5:52-54 S-0 '55. (MLRA 9:1)

1. Iz akushersko-ginekologicheskoy kliniki (zav.-prof. A.V.  
Vikulov) L'vovskogo meditsinskogo instituta.

(VAGINA, surg.

reconstruction with skin autograft)

(SKIN TRANSPLANTATION

autografts in

reconstruction of vagina)

ZAMYATINA, Z.I., dotsent (L'vov)

Management of the placental stage of labor. Fel'd.i akush. no.5:  
29-34 My '55. (MIRA 8:7)  
(LABOR,  
third stage, conduction)

*ZAMYATINA, Z.P.*

NIYAZOV, A.; ZAMYATINA, Z.P.; HEKMETOVA, N.G.

Naphthenes in the petroleum of Turkmenistan. Izv. AN Turk. SSR  
no. 5:51-58 '57. (MIRA 10:10)

1. Institut khimii AN Turkmenskoy SSR  
(Turkmenistan--Petroleum)  
(Naphthenes)

ZAMAYATINA P.P.			
✓ 332	AROMATIC HYDROCARBONS IN WESTERN HEAVY-DIG PETROLEUMS. 2.	4F 77	4F 34
NIVISOY, A. S.	Substitute. R. P. (BY. AKAD. NAUK SSSR) (Bull. Acad. Sci. USSR, Div. Chem. Sci., 1966, 11, 2226)		



**"APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001963720019-3**

**APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001963720019-3"**

NIYAZOV, A.; ZAMYATINA, Z.P.

Aromatic hydrocarbons of western Nebit-Dag petroleum. Izv.AN  
Turk.SSR no.1:23-26 '55. (MLBA 9:5)

1. Presidium AN Turkmeneskoy SSR.  
(Nebit-Dag--Petroleum) (Hydrocarbons)

**"APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001963720019-3**

**APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001963720019-3"**

NIYAZOV, A.; ZAMYATINA, Z.P.

Naphthenic acids of Turkmen petroleum. Izv.AN Turk.SSR no.6:  
49-55 '55. (MLBA 9:5)

1. Prezidium AN Turkmenskoy SSR.  
(Turkmenistan--Naphthenic acids)